2007-2008 UST REPORT

January 2009

(Photo courtesy Cedar Rapids Fire Department)
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Iowa Department of Natural Resources
Underground Storage Tank Section

Cover Photo: One cannot review the events of 2008 without prominently mentioning the devastating floods in central and eastern Iowa that left nearly 4000 Cedar Rapids residents homeless, and over half of Iowa's counties declared as disaster areas. The photo on the cover was taken of a Clark station near the Cedar River in downtown Cedar Rapids where four tanks had floated to the surface. The station remains closed as of January, 2009.

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Introduction

The foundations for effective UST release prevention are comprehensive rules that address all the technical, maintenance and operational aspects of UST systems (including owner/operator training), a field office presence for follow-up and technical assistance, a consistent and regular UST system inspection program, a well-trained and certified UST professional program and a database that can manage and track all the information. In 2007 and 2008, the UST Section addressed each of these areas in order to improve release prevention at 2900 UST sites across the state and to more efficiently use its resources including staff and budget. Nothing, however, improves prevention better than a well-trained, skillful, knowledgeable and experienced regulatory presence in the field conducting regular UST system inspections.

Third party inspections are now required under Chapter 567—135.20. All UST sites were required to be inspected in 2007, and thereafter, on a two-year cycle. The past two years have been very busy years filled with lessons learned. We are still trying to organize and appreciate all the information gathered in 2007. This report is but an overview of the activities and some of the information gathered over the past two years. It is not intended to represent a comprehensive report on all the new activities that took place.

Third Party UST Inspection Program

In 2007, the Iowa DNR UST Section joined a handful of other states (six) by implementing a third party compliance inspection program. This was a major shift for the UST Section and for owner/operators. To have a successful program we needed to prepare rules and guidance, train and educate inspectors, build a database and to provide support and education to owner/operators who were now being asked to cooperate with third party inspectors and bear the cost of the inspection. Continuous education and communication with owner/operators and third party inspectors helped us to build the program, gain support and implement the program in a year's time. Petroleum Marketers Management Insurance Company (PMMIC) and Petroleum Marketers and Convenience Stores of Iowa (PMCI) also effectively communicated the new inspection requirements to their members. Presentations were given at PMCI's annual Petroleum Marketers Expo, guest articles were published in PMCI's trade magazine, "Iowa Oil Spout", DNR's web page was updated, and several memos and notices were sent by the UST section to all owners and operators reminding them of the inspection requirements (Appendices B and C).

At the core of a third party inspection program are well-trained compliance inspectors who are knowledgeable and experienced in working with UST systems. DNR's UST Section licensed individuals for the third party inspection program who were already licensed UST installers and/or installation inspectors. The biggest challenge for the UST Section was how to provide

education and training for these individuals to become compliance inspectors or to recognize compliance issues at UST sites. It required a different hat be worn by these Iowa licensed installers and inspectors. There was some hesitation on the part of the inspectors—how would their clients look at them? Would they now look at them as a regulator? Would they continue to contract with them for non-inspection activities? The transformation to the new third party inspection program was an adjustment for everyone - UST professionals, DNR field offices and the central office.

DNR field office personnel formerly inspected UST sites for compliance. Due to budget constraints and demands from other DNR project areas, field office UST inspections have now given way to audits, investigating complaints, observing tank closures, technical assistance, LUST investigations and follow-up enforcement. Rules addressing third party inspections were adopted in 2006. In order to apply to be a third party inspector, an individual already had to be licensed in Iowa as an installer and/or an installation inspector. Thus, the UST Section made certain that owner/operators would get the most knowledgeable, skilled and experienced people conducting compliance inspections on their UST systems.

In order to jumpstart the third party inspection program, DNR held three training sessions for prospective third party inspectors in 2006. Fourteen inspectors completed training and passed the web-based EPA inspector training course, and were issued temporary certification to conduct inspections in 2007. Due to the short time in which to complete the rules, prepare and present training, manage the development of the inspection database and implement the inspection program, the UST Section had only enough time to provide temporary licensing and testing until a more formal training and testing could be provided.

Two requests for proposals (RFPs) relating to the third party inspection program were prepared in 2006. One for development of a web-based inspection database, the contract for which was awarded to Barker-Lemar Engineering of Des Moines, and the other contract was awarded to Petroleum Tank Training Institute, LLC (PTTI) of Saukville, Wisconsin for conducting training of third party inspectors and a refresher course for UST professionals (installers, installation inspectors, removers, testers, liners) to earn their CEUs.

In August 2008, the DNR UST Section provided permanent inspector certification training and testing to 34 individuals over two days. Marcel Moreau (of PTTI), a nationally known expert on UST system education and training, presented the course material (Appendix I). Twenty-six prospective third party inspectors completed the course and the exam; twenty-three individuals passed the exam. Eight individuals from DNR's field offices took the course and exam; all eight passed the exam.

At the time this report is being prepared, the second cycle of inspections (2009) is ready to begin. Third party inspectors are now formally trained, and many have experienced one cycle

of inspections (2007). The expectations of the UST Section have been well communicated to the inspectors through training, memos, and the creation of a dedicated web page for UST Inspectors and the public on DNR's website. The inspection database is operational and nearly completed after two years of development. The field offices are geared up for a new round of audits with a new audit policy guidance document in place. Rule development is ongoing, specifically modifications to Chapter 134 which addresses requirements for licensed UST professionals.

UST Third Party Inspection Facts

In 2007, the first year of the third party compliance inspection program, 2661 sites were inspected; 297 sites failed to schedule an inspection in time and were inspected in 2008 for a total of 2958 (Table 1). Some of these sites are undergoing further enforcement and are subject to a fine for failing to complete an inspection in 2007.

Petroleum Marketers Management Insurance Company (PMMIC) insures approximately two-thirds of the UST sites in Iowa and conducts annual inspections on those sites by Iowa-licensed third party inspectors. After working out expanded compliance and reporting requirements with the DNR's UST Section, PMMIC is now able to provide compliance inspections for their insured sites. By January 2009, PMMIC will be uploading inspection reports to the UST Section inspection database.

PMMIC conducted 1997 inspections in 2007, and 49 inspections in 2008. Non-PMMIC inspectors conducted 664 compliance inspections in 2007 and 248 in 2008 for a total of 912 inspections (Chart 1). Over 30 percent of the inspections were conducted by non-PMMIC third party inspectors. Almost 70 percent of the total inspections were conducted by PMMIC third party inspectors (Chart 2).

Field Office Audits

Field offices were also busy in 2007 conducting audits of the third party inspectors. An audit is a way of ensuring that each third party inspector is reviewing the same compliance items and accurately reporting all that is reviewed and observed. Field office personnel were instructed in how to conduct an audit, which audit procedure to use and how to enter the information on the new inspection database.

During the first year of third party inspections, it was decided all audits conducted by field office personnel would be analogous audits, i.e., field office personnel would conduct an inspection similar to the third party inspector and ask the owner/operator what records the third party inspector requested and what records the inspector was given by the owner. Field office personnel would review the same records as the inspector. An audit policy was

eventually adopted after several meetings with the field offices (Appendix E). Eventually, abbreviated audits will also be conducted, but not until everyone is more experienced and confident that all the compliance requirements are being reviewed.

Field offices conducted 218 audits in 2007 or 8 percent of the total third party inspections for that year. In 2008, field offices conducted 227 audits/inspections. The goal for 2007 was to conduct audits of at least 10 percent of the inspected sites. Due to inspection data entry lags for some of the PMMIC inspections and programming challenges for batch loading PMMIC information, field personnel were unable to access some of the inspection results for PMMIC sites. Consequently, audits of some of the 2007 inspections were not completed until early in 2008 when inspection information became available. Over the two-year period, however, the field offices conducted 445 audits/inspections, which is 15 percent of the total sites.

Table 1: 2007-2008 Third Party Inspections

Inspectors	Inspected 2007	Inspected 2008	Inspection Totals
All Third Party Inspectors	2661	297	2958
PMMIC Third Party Inspectors	1997	49	2046
Third Party Inspectors (Non-PMMIC)	664	248	912

Chart 1: 2007-2008 Third Party Inspections

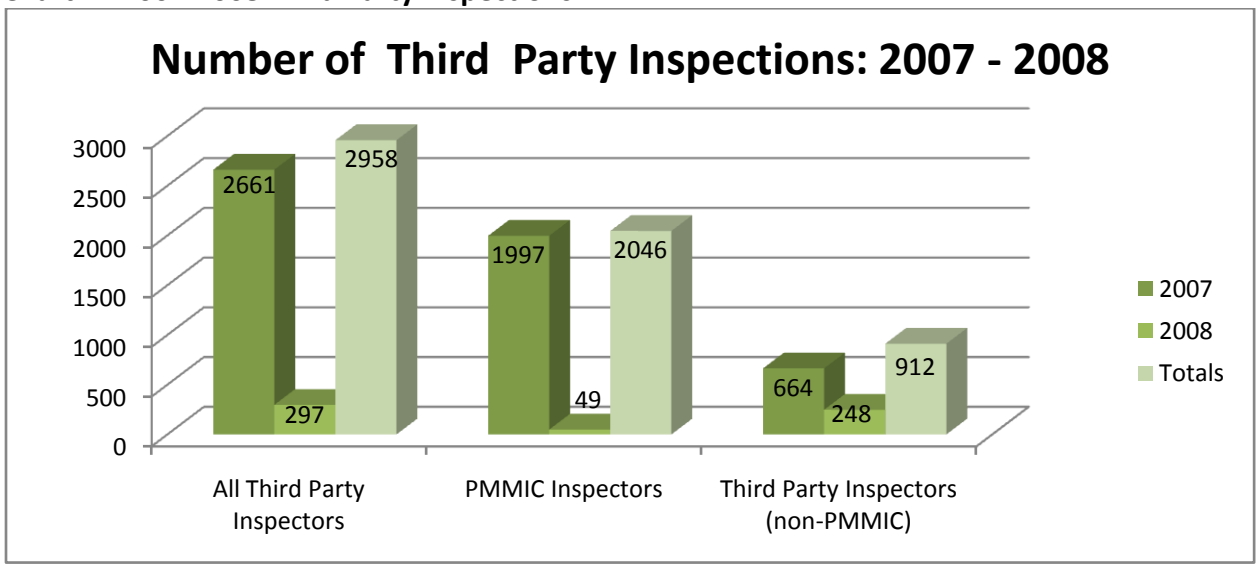
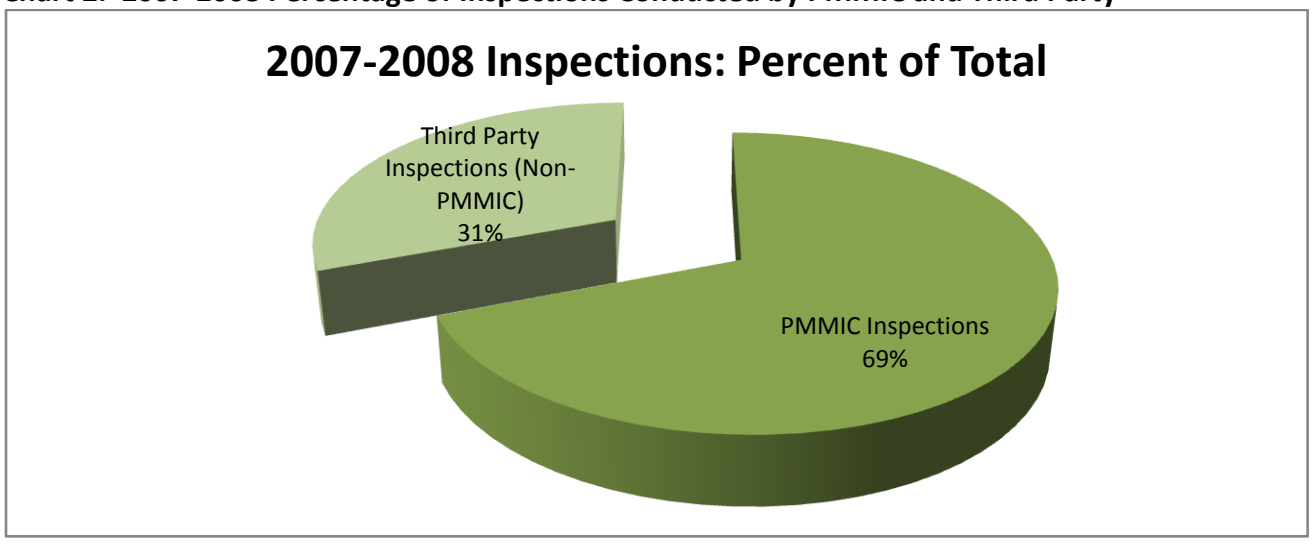


Chart 2: 2007-2008 Percentage of Inspections Conducted by PMMIC and Third Party



UST System Violations/Deficiencies

Conducting so many inspections in one year can uncover many violations. In fact, Iowa's fairly steady compliance rate of 75 percent over the previous years, dropped to 47 percent (or 64 percent if you remove all the violations for liquid and debris found in spill buckets—see Table 2). More inspectors with skill and experience were conducting four times as many inspections in one year as DNR had been able to conduct in the past. The number of violations discovered was bound to increase. While the statistics may indicate UST compliance has dropped from previous years, we believe the increase in field presence is an extraordinary benefit in that compliance problems that may have gone undetected for years are now being identified and can be quickly remedied. Because of Iowa's mandated biennial inspection requirement, our expectation is that the overall compliance rate will experience an upturn in the near future.

As expected, the majority of violations/deficiencies were found to be in the containment sumps (turbine sumps, transition sumps, UDCs) and spill buckets where liquid and debris can collect. Owners/operators are told to maintain clean/dry sumps and spill buckets. If liquid or debris is found during an inspection, it is recorded as a violation. Secondary containment is compromised if liquid or debris remains in the containment sump. While it may be difficult to keep rain and snowmelt out of the containment sumps, it is essential to their purpose, design and construction.

Along with liquid and debris in the containment sumps, inspectors also found penetration fittings that were damaged. Penetration seals (where the piping enters the sump) must be liquid tight to prevent high groundwater from entering the sump and product from being

released to the backfill. The sump must not have cracks or perforations in its walls. Test boots (flexible sleeve used to test the space between the primary and secondary walls for tightness) were also found to be a problem—either they were damaged (cracked or torn) or they were positioned incorrectly (would not allow the detection of a release between the primary and secondary walls of the piping). These findings are violations, and the owners/operators were required to resolve them.

Photo 1: Deteriorated penetration or entry boot

Photo 2: Torn penetration or entry boot

Photo 3

Photo 4

Photos 3 & 4: Twisted or kinked flex connectors were common discoveries during 2007 inspections. Flex connectors may not be bent beyond 90 degrees or beyond their plane. Bent or kinked flex connectors over time can leak.

Photo 5: Another severely bent flex connector that needs to be replaced

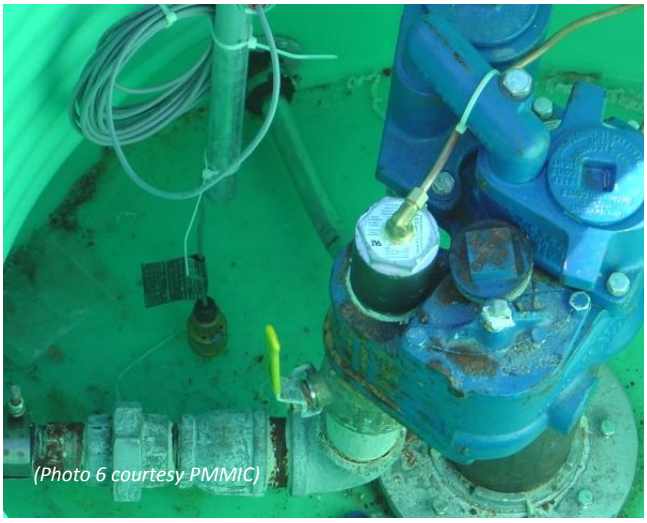


Photo 6: Water filling the bottom of a sump and a submerged sump sensor

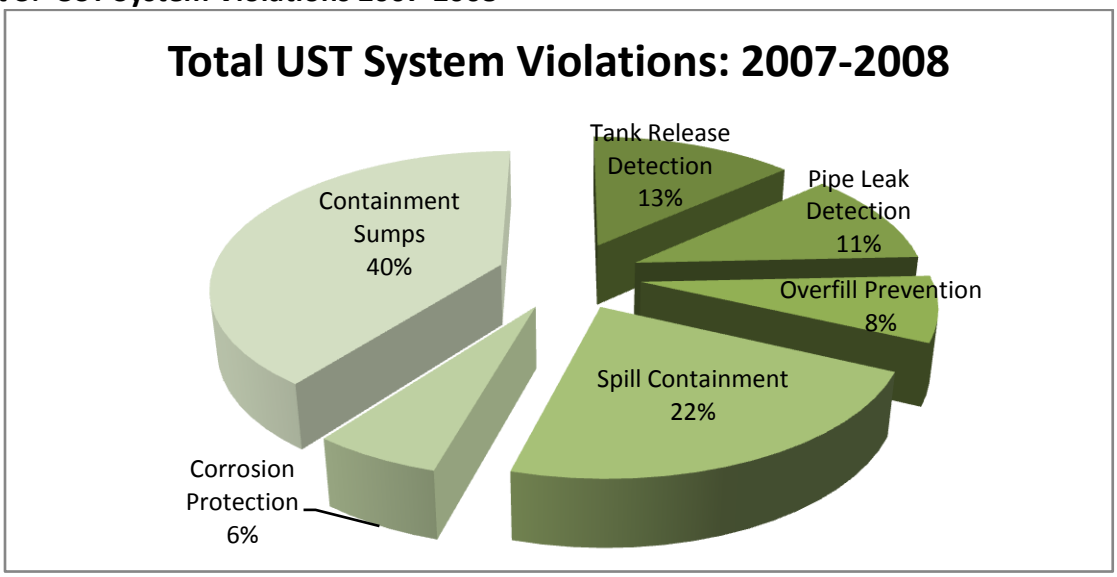
Photo 7: Submerged turbine in sump

Photo 8: Spill bucket containing fuel

UST Inspection Violations/Deficiencies

Chart 3 shows the percentage of the total violations (3566) for each of the six categories of violations. Violations were tallied for all the sites inspected. Containment sumps were the biggest problem found at sites during inspections. Forty percent of the violations found were sump violations (1417). Twenty-two percent (800) of the violations found were spill containment violations, which includes cracked or damage spill buckets, liquid and/or debris in the spill bucket or damaged covers (757 of 800 spill bucket violations were for liquid and debris). Corrosion protection represented the fewest violations (6% or 211 violations). Over the past ten years, newly installed tanks are either composite (steel jacketed with fiberglass) or Fiberglass Reinforced Plastic (FRP) tanks with no need for additional external corrosion protection.

Chart 3: UST System Violations 2007-2008



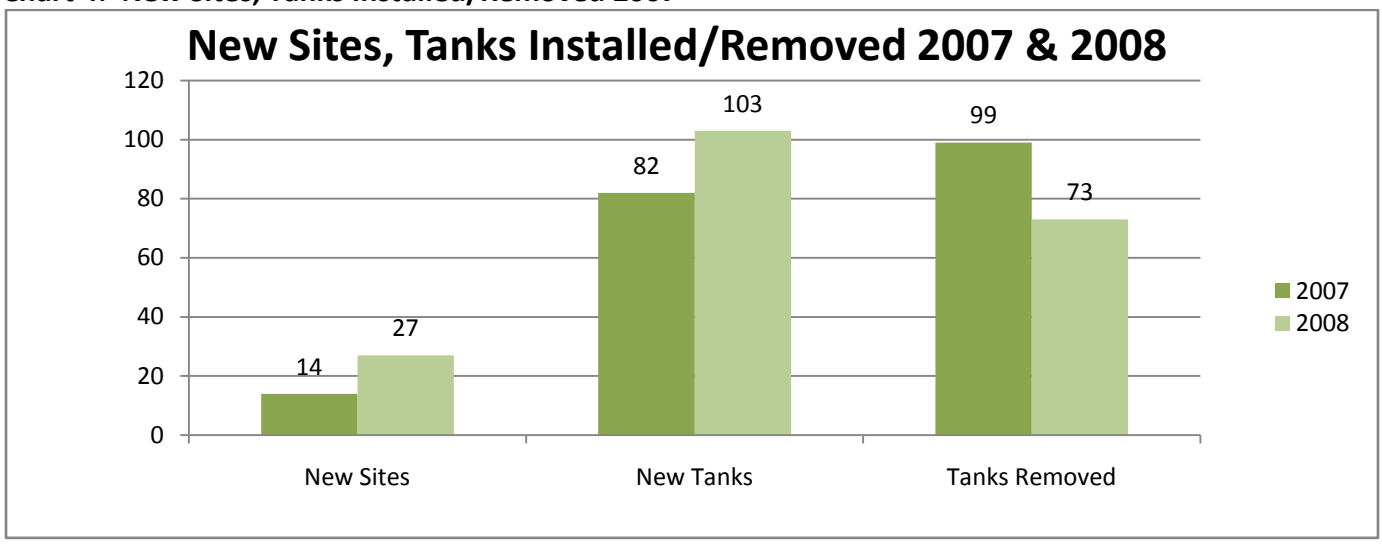
Significant Operational Compliance

Significant Operational Compliance (SOC) means EPA performance measures by which UST compliance is determined. Chart 3 represents a breakdown of violation types per total violations found, while Table 2 shows a tally of violation types at sites. Also, containment sumps are not included in Table 2. As mentioned earlier, because Iowa considers liquid and debris in spill buckets as a violation, the high number of violations brought down the overall compliance rate. If liquid in the spill bucket were not a violation, there would be only 43 violations instead of 800, and compliance for spill buckets would change from 73 percent in compliance to 98 percent in compliance. If liquid and debris were not counted, Iowa's overall compliance rate would be 64 percent (compared to 47 percent).

Table 2: Significant Operational Compliance

SOC Items	2007-2008 # Violations	% in Compliance	% out of Compliance
Pipe Leak Detection	389	86	14
Tank Leak Detection	477	83	17
Total Leak Detection	866	74	28
Cathodic Protection	211	92	8
Spill	800	73	27
Overfill	272	91	9
Total SOC Violations	2149		

Chart 4: New Sites, Tanks Installed/Removed 2007



In 2008, there were 7669 active USTs at 3017 sites. There were twice as many new UST sites in 2008 compared to new UST sites in 2007, with 13 more sites added, and 21 more tanks installed in 2008 than the previous year. Tank removals decreased by 26% in 2008 from 2007. Temporarily closed tanks are increasing with 324 in 2008, which may be a reflection of the economy and or high fuel prices.

Temporarily closed USTs require more attention than they might suggest. Owners and operators often think they can leave the tanks temporarily closed indefinitely and can neglect to maintain the UST system, pay the tank management fee, maintain insurance and schedule an inspection. Temporarily closed tanks require a good deal of attention and resources from tracking their status to making sure they are properly maintained. Proposed rules will require a maximum of three years for the length of time an UST system may be temporarily closed, at which point the tank must either be permanently and properly closed or brought back into operation.

Tank Top Access

Another area that received much attention in 2007 and 2008 was tank top access. Inspectors were told to observe whether tank top access was vapor tight (i.e., fill port caps and probe caps), and to tighten whatever they observed was loose. Open tank access with a ball float for overfill prevention, for example, can defeat the purpose of that overfill device as vapors would escape through other openings and prevent the device from engaging. A vapor-tight tank top will also ensure less benzene and harmful vapors escape to the environment. For sites that fall under National Emissions Standards for Hazardous Air Pollutants (NESHAP) or Stage 1 Vapor Recovery requirements, vapor-tight tank tops are the standard.

Cause of Release

Over the last two years (2007-2008), 102 releases were recorded (issued a leaking underground storage tank (LUST) identification number). Fourteen releases were reported within 24 hours. The remaining releases were discovered upon closure or by third party inspectors or field office personnel. *Proposed* Chapter 134 rules require UST professionals to report releases. Currently, owner/operators are required to report releases within 24 hours or within 6 hours if a hazardous condition exists.

Photo 9: One of the inspectors found this corroded spill bucket with a perforation. When product is spilled into the bucket during delivery, it is released to the backfill.

Photo 10: Wet, weeping or dripping pipes at dispensers were a common discovery during inspections.

Tank corrosion was the number one cause of releases during 2007-2008 (Chart 5). Tank corrosion is usually discovered during removal activities. Perforations or severe pitting/corrosion are not uncommon in older steel tanks in Iowa, especially lined tanks. Tanks were lined for a reason, and often holes were plugged before they were lined. The cause of the release in 44 percent of the cases was unknown, but likely the result of overfills, spills and damaged equipment such as spill buckets where product can be released to the backfill. Spill buckets receive a lot of abuse, from snow plows driving over them to regular deliveries and spills. Their life expectancy is approximately seven years.

Chart 5: Cause of Release 2007-2008

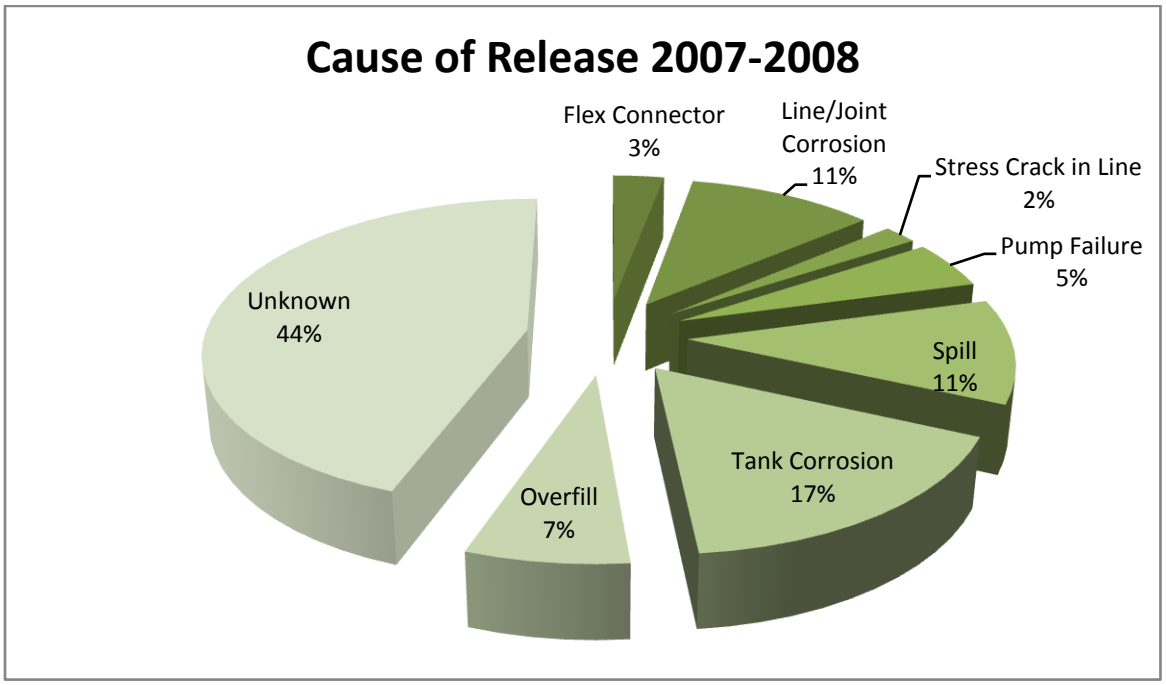


Photo 11: Perforated piping removed in 2008

Photo 12: Lined tank removed in 2008. This is how holes were plugged before the lining was applied.

(Photo 13 courtesy University of Iowa)

(Photo 14 courtesy DNR Field Office)

Photos 13 and 14 *(above)* show just two of the causes of releases in 2008.

In photo 13, a flex pipe was punctured by a construction stake. Photo 14 shows a severely corroded flex connector that caused the release of product in Photo 15 *(left)*.

(Photo 15 courtesy DNR Field Office)

Photo 15: Vapors lead to free product. It all began when DNR central office LUST staff asked Field Office 1 to investigate this site due to increasing benzene levels in soil gas monitoring.

The Floods of 2008

The floods of 2008 were devastating and unimaginable for thousands of people in Iowa. Dealing with cleanup and recovery has been even worse. Many UST owner/operators in eastern Iowa saw their sites completely flooded and in some cases, their tanks float out of the ground. From Waverly to Keokuk and all the cities in between it seemed like one giant body of water.

To ensure sites in the flood zone safely returned to operation, the UST Section developed an emergency flood policy that included an UST system checklist, which was to be completed by an Iowa licensed installer/installation inspector or compliance inspector (Appendix F).

Seventy-two sites were identified from FEMA flood maps as affected by the flood. Each site identified was sent a letter and a checklist. Field office personnel from Regions 1 and 6 and from other regions in the state assisted by visiting the flood plain sites and confirming which sites were submerged.

Forty-two sites were identified as having been submerged by flood waters and were required to complete the UST Emergency Flood Policy checklist (at least those that wanted to remain in business). Twenty of the 42 sites were not submerged by flood waters. Seven sites reported water in their tanks that required tank cleaning. It was not unusual for vent pipes, where they attach to the tank, to be broken off either by the force of the flood, the debris floating by or the buoyancy forces displacing the tank. Nine tanks from three different sites were displaced and floated. Several of the affected sites filled their tanks with product to counter the buoyancy forces; only to find their tanks still in place, but water had filled the tanks where there once was product.

Photo 16: View of downtown Cedar Rapids, June 17, 2008. Hundreds of city blocks are under water. Mays Island lies in the center of the river housing City Hall, Veteran's Memorial Auditorium, Linn County Courthouse and Correctional Facility.

Photo 17: Clark station tank that floated out of the tank pit. This is the same site shown on the cover page.

Photo 18: This tank came from the same site, but floated a lot farther. It was found a few weeks later lodged between two houses.

Photo 19: The overburden here was sand and topsoil—not enough to hold this tank underground.

Photo 20: Two 10000 gallon tanks with a concrete cover were pushed up by buoyancy forces. Most of the tanks that were submerged had product displaced by water. Displaced tanks like these were permanently closed.

Chapter 567—134 Part C Rule Revision

On July 1, 2007 the UST Section began administering Chapter 567—134 Part C: Installer and Inspector Licensing. The UST installer licensing program was formerly administered by the Iowa Comprehensive Petroleum UST Fund Board. When Iowa Administrative Code 455B.474 was changed such that administration of the program would be handled by the DNR, the

Environmental Protection Commission adopted via emergency rule making the same language and requirements used by the UST Fund Board for installer licensing. The DNR's intentions, however, have been to revisit those rules and update them to better conform to industry standards and practices.

In the meantime, to aid the administration of this new program, the UST Section developed an Installation Inspection Checklist (Appendix G). Until this time, there had been no prior uniform inspection checklist for installers/installation inspectors. Recently, the Stage 1 vapor recovery requirements were also incorporated into the Installation Inspection Checklist to cover changes in air quality rules (see Section on NESHAP).

Proposed rule modifications were developed in the fall of 2008, and submitted to the Environmental Protection Commission (EPC) in December, 2008 after holding two meetings with stakeholders. The significant changes in the rules include the licensing of removers; sample collection by certified groundwater professionals only; one fee for multiple licenses; cathodic protection testers must only maintain NACE or STI certification; UST professionals must report releases; liability insurance increased to $1,000,000 (in keeping with a statute change from 2007 legislation –IAC 455B.474); and new installation inspection form required to be used with specific installation inspection requirements.

If adopted, the change in release reporting requirements will also affect certified groundwater professionals and compliance inspectors — a proposal to amend both applicable sections of the rule will be made to reflect the same requirement as for installers, removers, testers, installation inspectors and liners.

The rules process will take several months; it is not expected that the rules will be approved and effective before June 1, 2009.

2005 Energy Policy Act Provisions

During the 2007 legislative session, IDNR submitted proposed changes to the Iowa Administrative Code [455B.474] that called for the Environmental Protection Commission (EPC) to adopt rules implementing UST provisions of the 2005 Federal Energy Policy Act. This legislation was adopted and became effective July 1, 2007. In 2007, three provisions of the 2005 Federal Energy Policy Act were implemented and rules developed in Chapter 567-135: Compliance Inspections (completed in 2006), Secondary Containment and Delivery Prohibition. Iowa's third party inspection program has been explained previously in this report. Iowa is one of six states that have moved to third party inspections.

Secondary Containment

All new UST systems and replacement tanks and piping must have secondary containment (double wall, containment sumps and under-dispenser containment) and use interstitial monitoring as the primary method of leak detection if they are located within 1,000 feet of a community water supply system or potable drinking water well (Chapter 567--135.3(9)). Because the definition of community water supply system includes transmission lines, we determined that almost every location in Iowa would be near a water supply system. Still, there are exception provisions to secondary containment provided in the rule. Secondary containment requirements are the most significant change in UST technical requirements since the upgrade deadline of 1998. The ability to protect groundwater from releases at new sites, theoretically, should double.

Fuel Delivery Prohibition

Sites with serious operation or maintenance violations such as no insurance, not conducting leak detection monitoring, not conducting an inspection, leaks not repaired, etc. may have a fuel delivery prohibition imposed on them. A delivery prohibition would effectively prevent the site from filling its tanks until the violation is resolved. The delivery prohibition process is found in Chapter 567—135.3(8). Sites with delivery prohibitions will be posted on the DNR's website so transporters may check their status before delivering product.

Owner Operator Training

The remaining Federal Energy Policy Act provision to implement is owner/operator training. An owner/operator training program and rules must be in place by August 8, 2009. Class A, B and C operators must be trained by August 8, 2012. The first draft of rules for owner/operator training has been prepared, and the DNR will begin its stakeholder input process early in 2009.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

Gasoline dispensing facilities (GDFs) are now required to control gasoline vapors based on the monthly throughput of the facility (gallons per month or gpm). There are three source categories of GDFs: less than 10,000 gpm (small), equal to or greater than 10,000 gpm (medium) and equal to or greater than 100,000 gpm (large). Source categories are determined by a 30-day rolling average throughput. If at any point throughput exceeds medium or large source categories, GDFs must comply with the requirements for those categories. Iowa-licensed installers and installation inspectors will play an important role in helping their clients understand the NESHAP requirements as new UST systems are installed and existing systems are retrofitted.

Complete Stage 1 vapor recovery systems are required on all new GDFs (installed after November 9, 2006) that meet or exceed the large GDF category. Dual point systems are required on GDFs installed after January 10, 2008. The deadline for installation of vapor recovery systems for new GDFs was September 23, 2008. That means any large, medium or small source facility built after November 9, 2006 must comply with the specific requirements by September 23, 2008. Any proposed large source GDF must have a complete Stage 1 vapor recovery system (dual point) ready to go at start up. Existing GDFs (constructed on or before November 9, 2006) that meet or exceed the large source category are required to have Stage 1 vapor recovery by January 10, 2011.

Stage 1 vapor recovery returns the gasoline vapors emitted during the transfer of gasoline to the UST back to the transport truck instead of forcing the vapors out through the vent pipe. Gasoline vapors contain benzene and volatile organic compounds (VOCs), which are harmful to the atmosphere and to human health.

Testing Stage 1 Vapor Recovery Systems:
Testing is conducted after backfilling or just before the vapor control system is put into operation. Test equipment must be third party evaluated. Testing is required on start up and every three years on Stage 1 vapor control systems. Owners and operators must maintain initial test results and every three-year pressure test results. Records must be maintained for five years.

NESHAP requirements will be enforced by DNR's Air Quality Bureau, but the UST Section, through its third party inspection program and field offices, will monitor the affected sites and their testing requirements. UST Section forms have already been prepared and revised to reflect the new requirements.

UST Professionals Discipline

As administrators of Chapter 567—134 Parts B & C, the UST Section is also responsible for discipline of UST Professionals. There were no serious disciplinary actions taken by the UST Section in 2007-2008. Five deficiency letters were issued to inspectors for not following inspection protocols. In the future, a code of professional ethics will be prepared to better explain and guide UST professional responsibilities and expectations.

UST/LUST Enforcement

Active UST sites that did schedule or complete a third party inspection in 2007 were targeted for enforcement in 2008 (Appendix H). The DNR's legal staff prepared expedited administrative consent orders relating to compliance inspections. The second phase for enforcement will be to identify all the inactive or temporarily closed sites that did not complete an inspection in 2007. The third phase of UST enforcement is to focus on sites that have completed a third party inspection and were found to have serious violations that were unresolved. Prior to this targeted enforcement policy, if violations were not resolved within 60 days, the inspector would turn over the enforcement to the central office which would then direct the field office to conduct follow-up enforcement. According to the new enforcement policy, significant violations that have been unresolved would be referred to the DNR's Legal Bureau for enforcement.

In addition to the inspection consent orders, three administrative orders (two UST, one LUST) were prepared in 2007 and three UST administrative orders were prepared in 2008. One delivery prohibition was enforced in 2008 for leak detection and cathodic protection violations. The prohibition was much more effective than previous compliance methods attempted, and the site quickly returned to compliance.

UST Professional Development

On August 7th and 8th, 2008 the DNR UST Section provided a refresher course designed to fulfill the continuing education requirement for UST professionals. This was a one day course offered on two consecutive days in order to keep the class size at a manageable level and to provide some flexibility for people who might have a conflict on one of the days. The course was presented by Marcel Moreau of Marcel Moreau Associates and PTTI. Marcel Moreau is among the few presenters in the country who is knowledgeable and experienced in UST requirements and technology and a very skilled presenter.

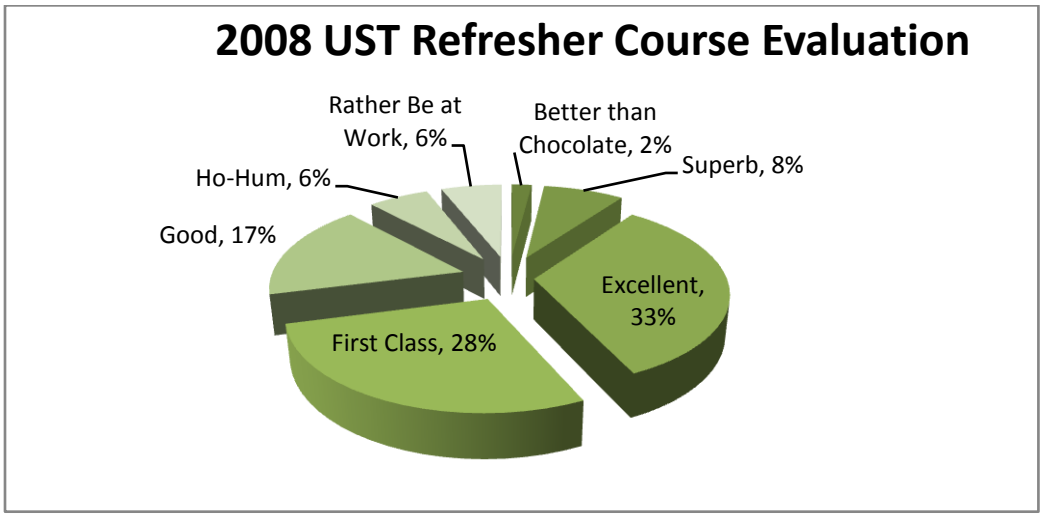
The UST Section wanted to provide something new and rewarding for the UST Professionals in its first year of administering the program. The Iowa licensed UST professionals deserve the best opportunities for continuing education and the UST Section tried to provide that for them. Topics included safety in working around combustible, flammable and hazardous substances, changes in Petroleum Equipment Institute (PEI) RP100, overfill prevention, inventory control, leak detection and Stage 1 vapor recovery (Appendix J). There was also time set aside to review UST inspection photos from the 2007 inspections, which seemed educational and informative for the UST professionals.

Fifty UST professionals took the August 7th course and 30 attended the August 8th course. There was a broad range of experience among UST professionals, from 2 years to over 35 years,

with a substantial amount of participants in the 15-25 year range. Marcel Moreau commented that the UST professionals had an impressive number of years of combined experience and the discussions reflected their experience, knowledge and understanding of UST technology, equipment, operation and maintenance. If discussion on the various topics and involvement in the course were a measure of success, the refresher course scored very well.

Participants were asked to provide their overall opinion of the class on a qualitative scale ranging from *Poor* to *Exceptional* (Chart 6). A total of fifty-two responded to the course evaluation.

Chart 6: UST Refresher Course Evaluation



Participants were also asked to rank the course material and pace, presentation and instructor on a scale from 1-10 (strongly agree). The participants overwhelmingly replied with positive responses to the factors they were asked to evaluate. The UST Section is very pleased with outcome of the course. It can be challenging to present a course to such experienced UST professionals. The evaluations were positive, the participants appeared engaged and interested, and the course material seemed to work. This program was well received and is worth doing again. Possible future topics recommended by Marcel Moreau include leak autopsies, mechanical and electronic line leak detectors, and comparison of American Petroleum Institute (API) 1615 (if published) and PEI RP100.

Work Requests

Work requests are sent from the DNR central office to the field office region where facility visits and field activities are being requested. There are a variety of reasons for sending a work request including follow-up inspections, further enforcement, complaint investigations, notification of new owners who need assistance, LUST visits, check monitoring wells for free product, etc. Work requests are essential for providing further information to the UST Section central office staff. Twenty-eight work requests were sent to field offices in 2007 and 34 in 2008. Ten LUST staff issued work requests in 2007, the remaining 18 were issued by UST staff. Of the 34 work requests issued to field offices in 2008, eight were issued by LUST staff and the remaining 26 by UST staff (Chart 7).

Chart 7: Work Requests: 2007 – 2008